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CHAPTER 16

New Roles and New Horizons for Health Sciences Librarians and Libraries

Margaret E. Henderson

INTRODUCTION

Health care, technology, and education are changing dramatically, and health sciences librarians and libraries must continue to adapt to keep up with the needs of patrons. Health sciences librarians moved beyond the role of information gatekeeper even before Web searching was commonplace, working as clinical medical librarians starting in the 1970s (Cimpl, 1985). In the 1990s, many libraries started moving to single-service desks staffed by paraprofessionals rather than reference librarians (Lubker et al., 2010; Moore, McGraw, and Shaw-Kokot, 2001; Murphy et al., 2008), leaving health sciences librarians more time to work on other new services inside and outside of the library building. These are only a few of the ways that health sciences librarians have adapted services to meet the changing needs of their patrons. In today's climate of change, it is not enough just to react and respond to those changes; health sciences librarians need to learn to spot trends, anticipate the needs of their patrons, and proactively find new roles that will help the mission of their organization. Health sciences libraries and librarians can stay relevant by linking goals and activities to the institutional goals for research, patient care, and education.

In order to take on new roles, reskilling (Auckland 2012), upskilling (Plutchak, 2012), and continuous professional development have become the norm for health sciences librarians; and library administrators need to factor time and money for continuing education into budgets. As T. Scott Plutchak noted in his 2011 Janet Doe lecture (2012), librarians need to focus on their skills and activities rather than on their libraries. Plutchak also says that health sciences librarians may be doing things that have never before been associated with a library. Once skills are separated from a specific place, be it a hospital or an academic institution, it is easier to consider new roles and services in a variety of locations. Health librarians also need to consider their nonlibrarian education and teaching as they look for new

roles and activities to advance their organization's mission (Reed, 2009). Health sciences librarians need to be open to any niche that opens up as new technologies and new institutional goals bring to light possible roles for information professionals. Finally, professional development activities must be actively pursued if health sciences librarians are to be considered partners and colleagues of collaborators outside of the library (Gore, 2013a) and keep libraries and librarians relevant. This chapter will cover some of the new roles for health sciences librarians that have recently appeared in the literature and job announcements, and consider some new roles that are appearing when health sciences librarians collaborate with institutional leadership and initiate new roles.

TRANSFORMATION OF HEALTH SCIENCES LIBRARIANSHIP

In 2005, Lindberg and Humphreys predicted that the jobs and functions of health sciences librarians would change by 2015. This transformation already has begun.

It is common to find librarians working as part of health-care teams, writing grant proposals, serving on institutional review boards, working as bioinformatics database specialists within science departments, serving as faculty members in evidence-based medicine courses, and being involved in multilingual health-literacy programs and community partnerships. (Lindberg and Humphreys, 2005: 1069)

In academic libraries today, health sciences librarians are ahead of most librarians when it comes to being embedded in the research and teaching activities of their organizations. An Association of Research Libraries report suggests that liaison librarians will need to build teams of library experts to advance client research, and librarians need to divest themselves of some work to take on emerging roles (Jaguszewski and Williams, 2013). Specifically, Trend 2 in the report suggests a hybrid model combining the roles of liaison and functional specialist or expert. This role should sound familiar to anyone in health sciences libraries. Clinical informationists, consumer health specialists, and bioinformatics librarians all combine a subject specialty with outreach to a specific community or group that uses the library. Interestingly, the video interview that accompanies this report is with a clinical liaison librarian, indicating the advanced nature of health sciences librarianship (Association of Research Libraries, 2013).

Finding New Roles

The October 2013 issue of the *Journal of the Medical Library Association (JMLA)* was a special issue, "New Roles For Health Science Librarians." In the editorial for the issue, Elaine Martin (2013b) points out that health sciences librarians can be more than just the keepers of the literature at the end of the research; librarians can contribute to the entire scholarly communication process. Martin isn't just speaking futuristically. Under her leadership, the Lamar Soutter Library at the University of Massachusetts Medical School has accepted that the work of health sciences librarians is increasing in volume and becoming more complex and technology focused.

The library is removing the reference desk and moving to a consultation model of reference as more librarians work outside the library.

A pair of articles in the *JMLA* special issue looks at new roles for health sciences and biomedical librarians using a survey (Crum and Cooper, 2013) and a systematic review of the literature and job ads (Cooper and Crum, 2013). The systematic review identifies among the new roles various embedded roles: liaison librarian, informationist, clinical informationist, bioinformationist, public health informationist, and disaster information specialist. Among the new activities are participating in systematic reviews; finding and teaching emerging technologies (which includes user experience librarian); and involvement with continuing medical education, grants development, and data management (Cooper and Crum, 2013). This list is similar to the most common added or planned roles from the survey paper:

- support for systematic reviews
- support for social media
- analysis/enhancement of user experience
- help for faculty/staff with authorship issues
- help for institutional authors to comply with National Institutes of Health (NIH) public-access policy
- implementation/support for researcher profiling/collaboration tools
- embedded librarian
- help for authors/department/administrators to comply with funder mandates

Many of these roles deal with the research enterprise of an institution, and Crum and Cooper note that hospital librarians are less likely than their academic counterparts to take on new roles.

Finding new ways to learn about what users need is one way to develop new roles for health sciences librarians. Symplur lists more than 104 Tweet Chats, www.symplur.com/healthcare-hashtags/tweet-chats/, in the health-care stream, and many of these can provide service ideas. One such chat is covered in the blog *Emerging Technologies Librarian*, which summarizes the Healthcare Leaders group discussing the future of medical librarians (Anderson, 2013). Health-care providers would like librarians who can provide reliable, accurate information via new technological formats, but who can also act as interpreters to digest data and communicate the information. Quite a few doctors mention that librarians should help patients with apps, and even help doctors and health-care providers find evidence supporting the use of technology. Social media allow librarians a new level of interaction with users and can give insights into the world at large. Judiciously reading Twitter or blogs or even looking at the mobile apps pinned on the **Pinterest** board of a patient or doctor for later study could give health sciences librarians an idea of what must be done to help users get the information they need.

EXPANDED ROLES IN RESEARCH

The importance of information literacy and health information literacy for students and consumers has enhanced the importance of health sciences librarians in the

curriculum. Many academic health sciences librarians have moved beyond basic orientation sessions and are teaching throughout the curriculum in schools of medicine, dentistry, nursing, pharmacy, and other health professions. For example, the Bibliothèque de la santé at Université de Montréal has numerous curriculum-integrated workshops throughout its biomedical undergraduate and graduate programs, as well as a specialized class in patents and genetic databases; virtual classes that have allowed the health sciences librarians to reach more than thirty-five hundred attendees in the 2011–2012 academic year (Clairoux et al., 2013). Now, health sciences librarians need to focus on becoming part of the institutional research enterprise. Research grant dollars are an important part of the income of many institutions, and the prestige of a well-cited research program is sought after by many institutions. At his keynote talk at the 2013 Association of Southeastern Research Libraries (ASERL) Summertime Summit, Sayeed Choudhury, associate dean for research data management, Johns Hopkins University Sheridan Libraries, encouraged librarians to promote themselves as providing research support, not just a library service (Choudhury, 2013).

Reaching Out to the Research Community

In order to expand research services, some health sciences libraries have relied on the expertise of a specific librarian or hire properly qualified librarians or nonlibrarians to develop support for a particular research need. This is especially true for bioinformatics services, where an individual with a graduate degree and/or practical research experience is essential to providing good support. With the proper personnel and support, a bioinformatics program that provides training, consultation, and software access can be a key part of integrating a health sciences library into the research process (Li, Chen, and Clintworth, 2013). As seen in chapter 10, health sciences librarians with data expertise can help with research data management teaching and data management plans for grants. Alternatively, health sciences librarians can evaluate the skills and expertise of existing staff and develop a suite of skills that can help researchers throughout the research life cycle. Effective marketing and outreach, and input from researchers, were found to be most important when the librarians at the Health Science Library, University of North Carolina at Chapel Hill, developed a research life-cycle model for library services (Vaughan et al., 2013).

As large, interdisciplinary research teams realize that they do not know the literature of the multiple fields of research covered by a project and that they have data and information to organize from multiple experiments from different groups, they will begin to recognize the need for knowledge management. Health sciences librarians must have an understanding of the research process and recognize the importance of the research enterprise to their institution to help with these new projects. Health sciences librarians must also seek out opportunities to find and meet researchers. When University of Florida (UF) health sciences librarians learned that more than two thousand UF researchers were on ResearchGate, www.researchgate.net, they began providing asynchronous reference services through the network. By using an existing social network for researchers, the health sciences librarians were able to answer questions and come in contact with more researchers at the university (Lessick et al., 2013.) As Clifford Lynch has pointed out, it is necessary to go

beyond pure research when deciding on services. Sometimes you need to work with real researchers to make progress (Lynch, 2014).

Informationists

The role of informationist is covered in chapter 9, but the combination of specialized knowledge of a subject and information management, plus the model of paying for some part of the time of a health science librarian, should be considered further. Health sciences librarians working as informationists have been shown to be of great value at the National Institutes of Health (Grefsheim et al., 2010), so the National Library of Medicine awarded eight “NLM Administrative Supplements for Informationist Services in NIH-funded Research Projects” grants in 2012 to further promote health sciences librarians as informationists.

Early reports from the health sciences libraries that received the awards have been generally positive. Being integrated into a research team gives the informationist and the health sciences library opportunities to become more involved and valued by the research community at the institution. The informationists have found the work to include many new tasks that require specialized subject knowledge, such as creating a **data dictionary**. That, in turn, allowed all team members to discuss and request data efficiently (Gore, 2013b), recommending tools and **workflows** to help with the collection of data and specimens (Surkis et al., 2013), filtering and appraising studies (Goode and Anton, 2013), and helping with data management and curation (Federer, 2013; Hanson et al., 2013). More traditional tasks such as conducting systematic reviews, teaching citation management and sharing, and helping with publishing issues have also been found to be part of the informationist’s role on a research team (Hasman, Berryman, and McIntosh, 2013). A concern was raised with balancing the amount of time needed for the research project with the other duties of the informationists (Whipple et al., 2013).

Greyson and colleagues (2013) describe the similar role of research-embedded health librarian (REHL). The REHL is defined as a librarian who “participates in a research team(s) rather than focusing on traditional library management and services and provides tailored, intensive information services to a health research team with which she or he is integrated” (Greyson et al., 2013: 288). REHLs help with current awareness, search the literature for a research team, and summarize and analyze the literature. REHLs also need to write and edit; and manage, extract, and analyze data. The REHL role depends heavily on the educational background and continuing education of the librarian.

The education and funding of informationists raises some interesting questions about the future of health sciences librarians and libraries. Should health sciences library managers work to get salaries for informationists and data librarians included in grants, or as separate grants? What will happen to the neutrality of libraries and library services if some people start paying to get more service? When researchers realize what informationists can do, will they hire them away from libraries? If research teams are asked to pay for informationists, will instructional teams be asked to pay for embedded librarians? Will informationists need to have dual degrees to be accepted on a research team? These questions do not have easy answers, but

THE MANY NAMES OF AN INFORMATIONIST

- bioinformationist
- clinical informationist
- clinical librarian
- clinical medical librarian
- embedded clinical librarian
- information specialist in context (ISIC)
- public health informationist
- research embedded health librarian (REHL)
- research informationist
- research librarian

health sciences librarians and library managers will need to consider these questions as they strive to provide the best possible service to their communities.

Research Assessment

Faculty members often turn to librarians for help when searching for citation counts to help with promotion and tenure documentation. The amount of author, journal, and institutional level citation information available to study impact at multiple levels of an organization has increased, making health librarians useful partners in assessment. Health sciences librarians can help by learning about all the new methods of assessment and collecting the various measures. Educating researchers and faculty about these methods of assessment is equally important and should start with teaching about author disambiguation. Faculty and researchers need to know how to set up profiles in multiple systems and how to link their profiles and output. If researchers and funders are going to value all output, as suggested by Heather Piwowar (2013), they will need to keep up with more than just citations to articles. Citations to online lab notebooks, patents, contributions to a software library, bookmarks to data sets from content-sharing sites such as Pinterest and **Delicious**, and other forms of scholarly impact will need to be followed, and the skills of health sciences librarians will be of great help.

Research on Health Sciences Libraries

Health librarians also need to conduct research to assess themselves and their libraries. Crum and Cooper (2013) found that analysis/enhancement of user experience was one of the roles that many libraries had planned for future positions. Hospital librarians, as mentioned above, need to be aware of the need to assess not only their services but also their value to the organization. The reduction in knowledge-based information access standards from the Joint Commission on Accreditation of Healthcare Organizations (Klein-Fedyshin, 2010); the space needs of new, lucrative hospital departments; and the increasing push for health care to be cost-effective have left little in the budget for hospital libraries. Health sciences librarians, like all

librarians, must be aware of the need to advocate for their library and their role in the institution. One model, the contributions of library and information services (CLIS) approach, involves linking library services to the specific goals of the organization and finding measures of library services that will show the impact of the library on that goal, and hence to the organization (Abels, Cogdill, and Zach, 2004). The Medical Library Association (MLA) Research Section is using the questions developed from its Research Agenda study to organize groups to conduct systematic reviews that will give health librarians some evidence for their value (Eldredge et al., 2012).

CLINICAL LIBRARIANS AND HOSPITAL LIBRARIES

Academic health sciences libraries have had to give up certain traditional roles and services in order to focus on new goals (Allee et al., 2014), and the same is true for hospital libraries. Some hospital libraries have given up physical library space in favor of a virtual library, and have found that literature search requests have increased and librarians are now able to regularly participate in rounds, which has also increased search requests (Waddell, Harkness, and Cohen, 2014). Recent studies show the value of hospital libraries (Health Libraries Inc and ALIA Health Libraries Australia, 2013; Marshall et al., 2013). But hospital librarians must consider doing their own research to prove their value to administrators and the institutional bottom line—and should think about new activities that can help secure the place of the hospital library in the institution (Kraft, 2013). One way to do this is for hospital librarians to explore opportunities to support research being done in hospitals. Any hospital that has or wants **Magnet Recognition Program** status (American Nurses Credentialing Center, 2013) needs to support nurses doing research. Colglazier and Henderson (2008) provided literature search support for nurses as well as setting up a collaborative workspace on the hospital intranet for the nurses to share ideas and work on research projects. The nurses of the Virginia Commonwealth University Health System (VCUHS) are always doing research to keep their Magnet status. The liaison librarian from the health sciences library works with the nurses to help them understand and improve the process of evidence-based practice at the bedside, and has developed classes and educational tools, including a Search Process Checklist,

One of the most enjoyable parts of my job is working with researchers to help them enhance the impact of their work. Cathy Sarli and I included strategies for investigators to enhance the impact of their research as part of the Becker Model for Assessing the Impact of Research, <https://becker.wustl.edu/impact-assessment>. Repetition, consistency, and an awareness of the intended audience form the basis of most of the strategies, which are divided into three categories: Preparing for Publication, Dissemination, and Keeping Track of Your Research. The strategies provide guidelines to help individuals optimize discoverability of their research to enhance its visibility and impact. We teach workshops on campus and provide in-person consultation services for our investigators, enhancing the visibility of the library in the process.

Kristi L. Holmes, PhD, bioinformaticist,
Becker Medical Library, Washington
University School of Medicine, St. Louis

that takes them through all the steps involved in researching a problem. Approaching the chief nursing officer and members of the nursing research committee has allowed the liaison to reach nurses throughout the hospital (Brown, 2013).

Clinical librarians, whether they are based in a hospital library or an academic health sciences library, need to combine subject knowledge with information science, similar to informationists. Besides understanding clinical terminology, knowledge of electronic health records and other advances in clinical care are useful additions to the skills of clinical librarians. Helping with infobuttons or evidence-based practice by finding guidelines is a necessary skill for clinical librarians if they are to contribute to the clinical decision-making process (Hardiker, Dundon, and McGowan, 2012).

Hospital and clinical librarians should also make a point of learning about patient-centered outcomes research and the grants being awarded by the Patient Centered Outcomes Research Institute PCORI, www.pcori.org/, and other groups interested in outcomes research. Any medical center with a community engagement program or a focus on patient outcome measures will be interested in learning how its activities could be funded. Investigating free bibliographic citation tools to help hospital employees with reports, articles, and other projects, and providing instructional sessions or consultations on preparing bibliographies are other useful services. Traditional services, such as alerting administrators about funding opportunities or new articles; and expert services, such as systematic reviews on community health issues, can combine to make the hospital librarian invaluable to the organization.

COLLABORATIONS

As trusted partners, health librarians can help faculty, researchers, staff, students, and others find out about the different, sometimes competing, resources on campus or educate them about the best ways to measure the impact of their work. Even when the research office of an institution provides a listing of core facilities for researchers to use, often groups outside of the funded cores can help with research or teaching.

Collaborative Workspaces

Departments have become siloed at many institutions, and the library is often the commonality, giving librarians the chance

When the University of Virginia established a Bioinformatics Core in late 2011, our library had several conversations with the incoming director about enhancing our support for PIs and other researchers. One idea generated was to provide researchers with a technology-enabled collaborative workspace. Most of the library's computing environment was designed to support curricular needs, and we wanted to differentiate a space for research. For us, it was a symbolic step in stating that this library is interested in providing deeper research support services, and we are willing to invest in that future. As suspected, the BioConnector Collaboration Environment is heavily used by a variety of patrons for purposes that support not only the research mission, but clinical and educational missions as well.

*Bart Ragon, associate director for
knowledge integration, research, &
technology, Claude Moore Health Science
Library, University of Virginia, Charlottesville*

to pull groups together. The library as a place can help as well, bringing collaborators together in a neutral place with the technology and collaboration tools that will facilitate research partnerships, or housing tools that multiple groups on campus need, such as simulation models or large-format printers and specialized software. Health sciences libraries can also provide hands-on experience with new technology and software for users who want to experiment before buying. Laptops and iPads are on loan in many libraries, with a selection of apps for testing. Computers with media software or statistical packages and 3-D cameras make it easy for students, researchers, and health-care workers to create presentations and reports or try new things without purchasing their own equipment.

The health sciences library can also act as a location for equipment that multiple groups need. Housing a distance education room or computer lab that can be booked by other groups is common, but it can be especially useful for hospital groups when patient services that bring in revenue for a hospital take over the training room in a hospital. Health sciences libraries that house anatomy models or collaborative equipment in their study rooms can make these more visible and available by providing a room scheduler on the library website that includes room contents so students and researchers know which room to book.

Collaborations with Campus Partners

The clinical and translational science program is a good place to form partnerships at a university, but health sciences librarians must seek out other opportunities and institutional gaps that will allow them to become integrated into the institutional community. The Medical Center Library at Duke University, for example, helps manage compliance with the NIH Public Access Policy for the university.

Other funder or government requirements can act as a foot in the door for health sciences libraries. The Medical Library Association has a special-interest group for librarians who work with the Institutional Animal Care and Use Committee (IACUC) at their institutions, and many librarians participate in Institutional Review Boards (IRB) covering research on human subjects.

As the manager for the Hardin Library Simulation Center, I keep track of the different curricular uses of the models housed in the library and keep our list of simulation centers on campus as up to date as possible. In addition, I serve as the head of our simulation center advisory committee, which still includes representatives from each of the health sciences colleges on campus. This advisory committee discusses issues surrounding the use of simulation to support health sciences education and interprofessional education goals as well as issues related to the models and simulators housed at Hardin Library.

Day-to-day responsibilities for managing the Hardin Library Simulation Center include the creation and modification of policies and procedures regarding the delivery and circulation of the models the library houses. I am also responsible for ensuring that the models are clean, well maintained, and not missing consumables, such as silicone oil to lubricate different parts, catheters, syringes, and so forth. This means that I have to be familiar to a certain extent with how the models function.

*Amy Blevins, clinical education librarian,
Hardin Library for the Health Science,
University of Iowa, Iowa City*

Librarian oversight of background searching for IACUC or IRB protocols is one way to become integrated into the research community of an institution. Data management plans and sharing mandates from the NIH and National Science Foundation (NSF), and data and publication access mandated by the Office of Science and Technology Policy (OSTP) in February 2013, allow opportunities for health sciences librarians to insert themselves into the research enterprise of an institution that receives government funding. Other funding agencies will soon have similar open-access or sharing requirements that health sciences librarians can help with if they learn about these mandates and plan for services that will help researchers comply.

The Taubman Library at the University of Michigan has taken collaboration beyond the institutional or national level. With the new Global Health program, the Taubman Library brings together global health units throughout the health sciences campus by helping with information resources, cultivating partnerships, finding grant and funding opportunities, helping with research, and collaborating with faculty to lessen health disparities (Allee et al., 2014).

Through informal discussions with the director of the Duke Office of Clinical Research (DOCR), I obtained an eRA Commons account in late 2012. Soon after, we learned that NIH planned to enforce the public access policy and realized that the library could have a role in supporting compliance. I have access to download reports from the NIH Compliance Monitor and do so periodically. We have formed a team of librarians who are trained in the process of ensuring compliance. Together, we have notified more than seven hundred of our PIs and guided our faculty from a compliance rate of 74 percent to 93 percent in six months.

*Emily Mazure, biomedical research
liaison librarian, Duke Medical
Center Library, Durham, NC*

ALTERNATIVE ROLES AND ACTIVITIES

Health Organizations

Working for a health association or professional organization library outside of the usual hospital or academic library has always been an option for health sciences librarians, but a recent survey found those that positions are changing as well (Dunikowski et al., 2013). The number and complexity of services in association libraries are increasing, and they support the association in nontraditional ways as well. Archives, publications support, advocacy, records management, and website help are the most reported services.

Institutional Archives

Involvement with the institutional archives offers another opportunity for health sciences librarians to expand their roles within the institution. One project at the Eskind Biomedical Library at Vanderbilt University Medical Center (VUMC) aligned

the library's strategic plan with the community-centered goals of the institution to create the website "VUMC Through Time: A Photographic Archive" (Giuse et al., 2013). The website team collaborated with the alumni, public affairs, and news offices, and members of the community can add photos and comments, increasing the community awareness of the library. The Rex Healthcare Medical Library in Raleigh, North Carolina, created a digital archive of its hospital and nursing school (Sorrell and Ender, 2011). Ready-made pdfs and PowerPoint slides make it easy for interested staff to include historical references in their presentations.

Expanding Opportunities for Health Science Librarians

Health sciences librarians should also be aware of positions outside of the health sciences library, especially those that require knowledge and skills in education, data, open access, institutional repositories, or scholarly communication. These areas span the institution; and because health sciences and biomedical research is at the forefront in many of these areas, health sciences librarians are well positioned to move to more global positions. Health sciences librarians direct continuing education in hospitals; hold data management, assessment, or education positions in the clinical and translational science programs at universities; have become directors of information technology for an institution; and have moved into higher administration positions such as associate vice president for academic affairs in an academic health sciences center.

THE CHANGING HEALTH SCIENCES LIBRARY ORGANIZATION

The Taubman Library at the University of Michigan (Allee et al., 2014), like the Lamar Soutter Library (Martin 2013a), has made

As information resources supervisor for the Oncology Nursing Society, I provide information services to staff—especially those in the education, publishing, and research departments—and members (currently more than thirty-five thousand), especially those who serve on project teams such as our Putting Evidence Into Practice (PEP) or edit/write for the books and journals we publish.

Mark Vrabel, information resources supervisor, Oncology Nursing Society, Pittsburgh, PA

In 2012, I was promoted from a middle management position in a health sciences library to assistant director of university libraries within a large ARL library system. To make that transition, I certainly called on my knowledge of librarianship and information science, and had innovated in some strategic areas. However, a data-driven orientation, knowledge of research metrics or technological aptitude pale in comparison to the skills derived from *emotional intelligence*. Having high emotional intelligence will distinguish you in a pool of applicants, ensure a smooth transition into a new environment, and allow you optimally to perform your new job with aplomb.

Dean Hendrix, assistant director of university libraries, University at Buffalo, The State University of New York, Buffalo

some major changes in staffing and library organization to reflect the new roles of health librarians. The position title of nonsupervisory librarian involved in academic, research, and clinical activities has been changed to “informationist.” In some ways, it doesn’t matter what terms are used to describe a position, because the positions all require more expertise than can be crammed into a two-year master’s program, which is one of the reasons multiple institutions are now offering fellowship programs. Clinical research teams responding to an NIH survey viewed science and medicine education as key to the preparation of informationists (Grefsheim et al., 2010). In addition to the subject background of health science librarians is the need to respond to changes in education, health care, and technology. AAMC objectives (AAMC and Medical School Objectives Project, 1998) include lifelong learning for medical students, so it is not unreasonable to expect the same of the librarians who are teaching and helping health-care students, doctors, nurses, and the other members of the health-care team.

Health sciences librarians and libraries can learn from health-care organizations that have had to become learning organizations to keep up with the changes in electronic health records (EHRs) and new health-care expectations because of the Affordable Care Act (ACA). Kaiser Permanente leaders developed a system for continuous improvement in their hospital systems (Schilling et al., 2011) by creating a learning organization that includes six building blocks to make a transition:

1. real-time sharing of meaningful performance data
2. formal training in problem-solving methodology
3. workforce engagement and informal knowledge sharing
4. leadership structures, beliefs, and behaviors
5. internal and external benchmarking
6. technical knowledge sharing

These building blocks help improve team learning; build a shared vision; practice learning at personal, work unit, and organizational levels; and build and share knowledge throughout the organization. Workforce engagement and uptake of technologies will bring challenges, but the organization can move forward, knowing that a learning organization has the capability to improve.

Health sciences library managers need to look outside of the library for direction. A survey of health sciences library directors found that libraries need to align with the institutional mission, and librarians need to “become more involved in the fabric of the institution so that they can anticipate where unique skill sets might be required to foster an evidence-rich environment” (McGowan, 2012: 44). Additional credentialing or continuing education beyond the MLS may be needed to keep up with new institutional goals and the constant changes in technology and increases in available information. Membership in the Academy of Health Information Professionals (AHIP) is one way health librarians can show their commitment to professional development.

SUMMARY

It is easy to get caught up in the excitement of new roles and interesting research ventures; but without administrative support, taking on new activities can bring

problems. Cox, Verbann, and Sen saw problems with the many new roles librarians are being asked to fill with all the changes in health and education: "After all, librarians are already busy. Liaison librarians, for example, have a range of existing roles, such as in collection development, information literacy training, enquiry handling, marketing, committee work, informal networking and management roles" (2012). And Jake Carlson (2013), looking at the role of librarians in data services, finds that "libraries must reconsider their organizational structures and cultures to be able to take on data management and other innovative service areas successfully." Health sciences library managers must find a balance between the time needed for extra training and professional development and the new and existing roles that health sciences librarians are being asked to take on to support their organizations.

Future roles for health sciences librarians offer no shortage of ideas. The challenge will be to find managers and administrators who are willing to see a larger role for health sciences librarians and libraries in the research, clinical, and educational enterprise of their institutions. Health sciences librarians will need to be flexible and curious in order to fill the new roles that arise as education and research change in response to technological and societal pressures. Two years of postgraduate education will not be enough for librarians to take on the emerging roles in health libraries. Graduates will need to come into library science programs with health science-related degrees and experience; or they will need to be willing to pursue additional subject-related continuing education classes; or they may choose to work as fellows or interns for one or two years to acquire the skills necessary to fill the new roles health sciences librarians are taking on. Professional development will be critical for all health sciences librarians because of advances in technology, educational models, and health sciences research. All health sciences librarians must learn to live in a world of constant change.

STUDY QUESTIONS

1. Which new roles for health sciences librarians would you pursue if you were a library director, and how would you introduce those roles to your existing staff?
2. Which professional development activities would you recommend for health sciences librarians who want to take on new roles?
3. What research could hospital or clinical librarians conduct to show the value of their services?
4. Study the organizational structure of an academic institution, research organization, or hospital, and list the groups and departments that could use or support health sciences librarians.

REFERENCES

- AAMC and Medical School Objectives Project. 1998. *Report 1: Learning Objectives for Medical Student Education: Guidelines for Medical Schools*. <https://members.aamc.org/eweb/upload/Learning%20Objectives%20for%20Medical%20Student%20Educ%20Report%20I.pdf>.
- Abels, Eileen G., Keith W. Cogdill, and Lisl Zach. 2004. "Identifying and Communicating the Contributions of Library and Information Services in Hospitals and Academic Health Sciences Centers." *Journal of the Medical Library Association* 92, no. 1 (January): 46–55.

- Allee, Nancy J., Jane Blumenthal, Karen Jordan et al. 2014. "One Institution's Experience in Transforming the Health Sciences Library of the Future." *Medical Reference Services Quarterly* 33, no. 1 (January–March): In press.[AQ1]
- American Nurses Credentialing Center. 2013. "ANCC Magnet Recognition Program." www.nursecredentialing.org/Magnet.aspx.
- Anderson, Patricia F. 2013. "Hashtags of the Week (HOTW): Healthcare Leaders on the Future of Medical Librarians (Week of September 2, 2013)." *Emerging Technologies Librarian* (blog). <http://etechlib.wordpress.com/2013/09/06/hashtags-of-the-week-hotw-healthcare-leaders-on-the-future-of-medical-librarians-week-of-september-2-2013/>.
- Association of Research Libraries. 2013. *New Roles for New Times: Transforming Liaison Roles in Research Libraries with Jonathan Koffel*. www.youtube.com/watch?v=Y0cxdS-EYpU&feature=share&list=UU81MgM4v-scw34Q6zLWYCwg.
- Auckland, Mary. 2012. *Reskilling for Research: An Investigation into the Role and Skills of Subject and Liaison Librarians Required to Effectively Support the Evolving Information Needs of Researchers*. Research Libraries UK (RLUK). www.rluk.ac.uk/files/RLUK%20Re-skilling.pdf.
- Brown, Roy. Personal communication. 2013.
- Carlson, Jake R. 2013. "Opportunities and Barriers for Librarians in Exploring Data: Observations from the Data Curation Profile Workshops." *Journal of eScience Librarianship* 2, no. 2: article 2.
- Choudhury, Sayeed. 2013. "Open Access & Data Management are do-Able through Partnerships." Keynote speaker at Association of Southeastern Research Libraries, Summertime Summit, Atlanta, ASERL, August 6.
- Cimpl, K. 1985. "Clinical Medical Librarianship: A Review of the Literature." *Bulletin of the Medical Library Association* 73, no. 1 (January): 21–28.
- Clairoux, Natalie, Sylvie Desbiens, Monique Clar, Patrice Dupont, and Monique St-Jean. 2013. "Integrating Information Literacy in Health Sciences Curricula: A Case Study from Quebec." *Health Information and Libraries Journal* 30, no. 3: 201–11. doi: 10.1111/hir.12025; 10.1111/hir.12025.
- Colglazier, Merle, and Margaret Henderson. 2008. "Helping Nurses Reach for Magnet Status: Facilitating Collaboration and Information Sharing." Poster presented at the Mid-Atlantic Chapter of the Medical Library Association, Morgantown, WV, October 20–22.
- Cooper, I. Diane, and Janet A. Crum. 2013. "New Activities and Changing Roles of Health Sciences Librarians: A Systematic Review, 1990–2012." *Journal of the Medical Library Association* 101, no. 4 (October): 268–77.
- Cox, Andrew, Eddy Verbaan, and Barbara Sen. 2012. "Upskilling Liaison Librarians for Research Data Management." *Ariadne: A Web & Print Magazine of Internet Issues for Librarians & Information Specialists* 70. www.ariadne.ac.uk/issue70/cox-et-al.
- Crum, Janet A., and I. Diane Cooper. 2013. "Emerging Roles for Biomedical Librarians: A Survey of Current Practice, Challenges, and Changes." *Journal of the Medical Library Association* 101, no. 4 (October): 278–86.
- Dunikowski, Lynn G., Aleta C. Embrey, Warren G. Hawkes, Jean E. Riedlinger, Marian G. Taliaferro, and Pamela M. Van Hine. 2013. "The Health Association Libraries Section Survey: Finding Clues to Changing Roles." *Journal of the Medical Library Association* 101, no. 4 (October): 318–22.
- Eldredge, Jonathan D., Marie T. Ascher, Heather N. Holmes, and Martha R. Harris. 2012. "The New Medical Library Association Research Agenda: Final Results from a Three-Phase Delphi Study." *Journal of the Medical Library Association: JMLA* 100, no. 3 (July): 214–18. doi: 10.3163/1536-5050.100.3.012; 10.3163/1536-5050.100.3.012.
- Federer, Lisa. 2013. "The Librarian as Research Informationist: A Case Study." *Journal of the Medical Library Association* 101, no. 4 (October): 298–302.

- Giuse, Nunzia B., Shelia V. Kusnoor, Taneya Y. Koonce et al. 2013. "Strategically Aligning a Mandala of Competencies to Advance a Transformative Vision." *Journal of the Medical Library Association* 101, no. 4 (October): 261–67.
- Goode, Victoria H., and Blair Anton. 2013. "Welch Informationist Collaboration with the Johns Hopkins Medicine Department of Radiology." *Journal of eScience Librarianship* 2, no. 1: article 5. doi: <http://dx.doi.org/10.7191/jeslib.2013.1033>.
- Gore, Sally A. 2013a. "The Talented Mr. Ripley in the Library with the Candlestick." *A Librarian by Any Other Name* (blog). http://librarianhats.net/2013/09/25/mr_ripley/.
- . 2013b. "A Librarian by any Other Name: The Role of the Informationist on a Clinical Research Team." *Journal of eScience Librarianship* 2, no. 1: article 6. doi: <http://dx.doi.org/10.7191/jeslib.2013.104>.
- Grefsheim, Suzanne F., Susan C. Whitmore, Barbara A. Rapp, Jocelyn A. Rankin, Rex R. Robison, and Candace C. Canto. 2010. "The Informationist: Building Evidence for an Emerging Health Profession." *Journal of the Medical Library Association* 98, no. 2 (April): 147–56.
- Greyson, Devon, Soleil Surette, Liz Dennett, and Trish Chatterley. 2013. "'You're Just One of the Group when You're Embedded': Report from a Mixed-Method Investigation of the Research-Embedded Health Librarian Experience." *Journal of the Medical Library Association* 101, no. 4 (October): 287–97.
- Hanson, Karen L., Theodora A. Bakker, Mario A. Svirsky, Arlene C. Neuman, and Neil Rambo. 2013. "Informationist Role: Clinical Data Management in Auditory Research." *Journal of eScience Librarianship* 2, no. 1: article 7. doi: <http://dx.doi.org/10.7191/jeslib.2013.1030>.
- Hardiker, Nicholas R., Joanna Dundon, and Jessie McGowan. 2012. "Changing Technology to Meet Clinicians' Information Needs." In *Changing Roles and Contexts for Health Library and Information Professionals*, edited by Alison Brettle and Christine Urquhart, 39–50. London: Facet Publishing.
- Hasman, Linda, Donna Berryman, and Scott McIntosh. 2013. "NLM Informationist Grant—Web Assisted Tobacco Intervention for Community College Students." *Journal of eScience Librarianship* 2, no. 1: article 8.
- Health Libraries Inc and ALIA Health Libraries Australia. 2013. *Worth Every Cent and More: An Independent Assessment of the Return on Investment of Health Libraries in Australia*. Canberra ACT, Australian Library and Information Association. www.alia.org.au/sites/default/files/Worth-Every-Cent-and-More-FULL-REPORT.pdf.
- Jaguszewski, Janice M., and Karen Williams. 2013. *New Roles for New Times: Transforming Liaison Roles in Research Libraries*. Association of Research Libraries. www.arl.org/storage/documents/publications/NRNT-Liaison-Roles-final.pdf.
- Klein-Fedyshin, Michele. 2010. "It was the Worst of Times, It was the Best of Times: Positive Trends Influencing Hospital Libraries." *Journal of the Medical Library Association* 98, no. 3 (July): 196–99.
- Kraft, Michelle. 2013. "Australian Healthcare Orgs Gain \$9 for Every \$1 Spent on their Health Libraries." Abstract. <http://kraftylibrarian.com/?p=2509>.
- Lessick, Susan, Eric Rumsey, Donald S. Pearson et al. 2013. "Moving Beyond the Bookshelves." *Journal of the Medical Library Association* 101, no. 4 (October): 239–43.
- Li, Meng, Yi-Bu Chen, and William A. Clintworth. 2013. "Expanding Roles in a Library-Based Bioinformatics Service Program: A Case Study." *Journal of the Medical Library Association* 101, no. 4 (October): 303–9.
- Lindberg, Donald A. B., and Betsy L. Humphreys. 2005. "2015—the Future of Medical Libraries." *New England Journal of Medicine* 352, no. 11: 1067–70.
- Lubker, Irene M., Margaret E. Henderson, Catherine S. Canevari, and Barbara A. Wright. 2010. "Refocusing Reference Services Outside the Library Building: One Library's Experience." *Medical Reference Services Quarterly* 29, no. 3 (July–September): 218–28.

- Lynch, Clifford. 2014. "The Next Generation of Challenges in the Curation of Scholarly Data." In *Research Data Management: Practical Strategies for Information Professionals*, edited by Joyce M. Ray, 395–408. West Lafayette, IN: Purdue University Press.
- Marshall, Joanne G., Julia Sollenberger, Sharon Easterby-Gannett et al. 2013. "The Value of Library and Information Services in Patient Care: Results of a Multisite Study." *Journal of the Medical Library Association* 101, no. 1 (January): 38–46.
- Martin, Elaine R. 2013a. "The Four R's: The Future of the Library (Reject, Rethink, Redo, Rejuvenate: A New Model for Academic Health Sciences Libraries)." SlideShare presentation. www.slideshare.net/ElaineMartin1/social-media-slides-4-rs.
- . 2013b. "Shaping Opportunities for the New Health Sciences Librarian." *Journal of the Medical Library Association* 101, no. 4 (October): 252–53.
- McGowan, J. J. 2012. "Tomorrow's Academic Health Sciences Library Today." *Journal of the Medical Library Association* 100, no. 1 (January): 43–46.
- Moore, Margaret E., Kathleen A. McGraw, and Julia Shaw-Kokot. 2001. "Preparing Staff to Work at a Single Service Desk." *Medical Reference Services Quarterly* 20, no. 1 (Spring): 79–86.
- Murphy, Beverly, Richard A. Peterson, Hattie Vines et al. 2008. "Revolution at the Library Service Desk." *Medical Reference Services Quarterly* 27, no. 4 (Winter): 379–93.
- Piwovar, Heather. 2013. "Altmetrics: Value all Research Products." *Nature* 493, no. 7431: 159.
- Plutchak, T. S. 2012. "Breaking the Barriers of Time and Space: The Dawning of the Great Age of Librarians." *Journal of the Medical Library Association* 100, no. 1: 10–19.
- Reed, Andrea D. 2009. "Skill Check: Utilizing Your Nontraditional Library Education." *Info Career Trends*. March 2. http://lisjobs.com/career_trends/?p=523.
- Schilling, Lisa, James W. Dearing, Paul Staley, Patti Harvey, Linda Fahey, and Francesca Kuruppu. 2011. "Kaiser Permanente's Performance Improvement System, Part 4: Creating a Learning Organization." *Joint Commission Journal on Quality and Patient Safety/Joint Commission Resources* 37, no. 12: 532–43.
- Sorrell, Melanie, and Deniz Ender. 2011. "Rex History Project: Looking Back to Capitalize on our Progress." Poster presented at the Mid-Atlantic Chapter of the Medical Library Association, Richmond, VA, October.
- Surkis, Alisa, Aileen McCrillis, Richard McGowan et al. 2013. "Informationist Support for a Study of the Role of Proteases and Peptides in Cancer Pain." *Journal of eScience Librarianship* 2, no. 1: article 9.
- Vaughan, K. T., Barrie E. Hayes, Rachel C. Lerner et al. 2013. "Development of the Research Lifecycle Model for Library Services." *Journal of the Medical Library Association* 101, no. 4: 310–14.
- Waddell, Stacie, Amy Harkness, and Mark L. Cohen. 2014. "The Road to Virtual: The Sauls Memorial Virtual Library's Journey." *Medical Reference Services Quarterly* 33, no. 1 (January–March): In press. **[AQ2, chapter 16: OK to include in press article?]**
- Whipple, Elizabeth C., Jere D. Odell, Rick K. Ralston, and Gilbert C. Liu. 2013. "When Informationists Get Involved: The CHICA-GIS Project." *Journal of eScience Librarianship* 2, no. 1: article 10. doi: <http://dx.doi.org/10.7191/jeslib.2013.1035>.